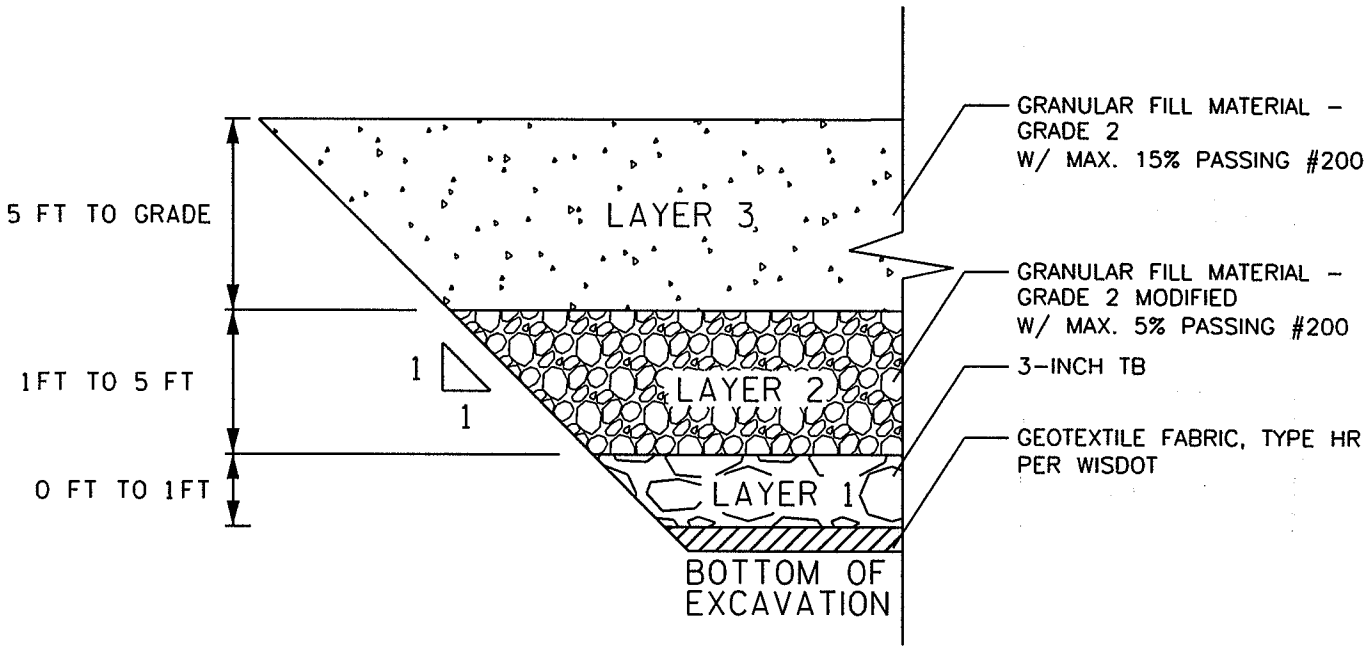
## SUMMARY OF ESTIMATED QUANTITIES
## LAKE MILLS WALGREENS

**Table 1.0 – Summary of Estimated Quantities**

| ITEM NO. | ITEM DESCRIPTION | ESTIMATED QUANTITY | UNITS | UNIT PRICE | TOTAL PRICE |
|---|---|---|---|---|---|
| 1. | 3-inch TB | 500 | TON | $_____ | $_____ |
| 2. | Imported Backfill, Grade 2 Modified | 1,650 | TON | $_____ | $_____ |
| 3. | Imported Backfill, Grade 2 | 7,500 | TON | $_____ | $_____ |
| 4. | Backfilling and Compacting | 1 | LS | $_____ | $_____ |
| 5. | Geotextile Fabric, Type HR | 800 | SY | $_____ | $_____ |
| | **TOTAL: Items #1-#5** | | | | $_____ |

Note: All Bid Quantities are estimated. The Contractor shall field verify all quantities and work prior to submitting a Bid. Final quantities shall be adjusted to reflect the field installed quantities. The unit price in the Bid shall not be adjusted though final quantities may vary. Lump sum prices shall not be adjusted. The Engineer's estimate of quantities as shown in the Bid is approximate and the right is reserved by the Owner to increase or decrease said quantities.

In an effort to control Cost overruns and eliminate dispute over approval of additional costs, the Contractor shall be required to notify the Engineer when any particular bid items is anticipated to go over a bid quantity by more than 5%. Change orders and additional work with be approved in writing prior to completing the work.




GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE ALL NECESSARY EQUIPMENT REQUIRED TO OBTAIN SPECIFIED COMPACTION. COMPACTION BY TRAVEL OF EQUIPMENT IS NOT CONSIDERED ADEQUATE FOR UNIFORM COMPACTION.
2. INITIAL BACKFILL SHALL BE DENSELY COMPACTED, NON-COHESIVE FINELY DIVIDED MATERIAL FREE OF DEBRIS, ORGANIC MATERIAL, AND LARGE STONES.
3. BUILDING FOUNDATION LIMITS

   BACKFILL BENEATH BUILDING FOUNDATION LIMITS SHALL BE SPREAD AND COMPACTED UNIFORMLY IN 8 INCH LIFTS TO AT LEAST 95 PERCENT OF MODIFIED PROCTOR (ASTM D1557).

   PROPOSED PAVEMENT LIMITS

   BACKFILL BENEATH PROPOSED PAVEMENT LIMITS SHALL BE SPREAD AND COMPACTED UNIFORMLY IN 8 INCH LIFTS TO AT LEAST 95 PERCENT OF MODIFIED PROCTOR AT A DEPTH WITHIN 5 FEET OF THE PROPOSED PAVEMENT SURFACE.

   BACKFILL BENEATH PROPOSED PAVEMENT LIMITS SHALL BE SPREAD AND COMPACTED UNIFORMLY IN 8 INCH LIFTS TO AT LEAST 90 PERCENT OF MODIFIED PROCTOR (ASTM D1557) BELOW A DEPTH OF 5 FEET FROM THE PROPOSED PAVEMENT SURFACE.
4. THE LOCATION OF LAYER 3 SHALL BE ABOVE THE WATER TABLE AND SHALL BE DETERMINED BY THE ENGINEER.

## BACKFILL DETAIL

SCALE: NONE

MSA PROFESSIONAL SERVICES
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FIGURE 1.0 - IMPORTED GRANULAR BACKFILL DETAIL



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SECTION 31 23 16.16

STRUCTURAL EXCAVATION FOR STRUCTURES

## PART 1 GENERAL

### 1.01 APPLICABLE PROVISIONS

A. Applicable Provisions of Division 01 shall govern work of this section.

### 1.02 APPLICABLE PUBLICATIONS

A. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the reference thereto.

1. American Society for Testing and Materials (ASTM), Annual Book of ASTM Standards, Current Edition.
2. Code of Federal Regulations (CFR), Title 29, Chapter XVII - Occupational Safety and Health Administration (OSHA), Department of Labor - Part 1926 Regulations, Current Edition.
3. State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, 2003 Edition, and current Supplemental Specifications.

### 1.03 DESCRIPTION OF WORK

A. The work under this section shall include all excavation, backfill and compaction for structures and other miscellaneous excavation, backfill and compaction required but not designated under other sections.

### 1.04 RELATED WORK ELSEWHERE

A. Procurement and Contracting Requirements - Division 00 (All Sections)

B. Cast-in-Place Concrete - Division 03

C. Subgrade Preparation - Division 31

D. Dewatering - Division 31

E. Trenching and Backfilling - Division 31

### 1.05 SUBMITTALS (NONE)

### 1.06 OPERATION/MAINTENANCE MANUALS AND INSTRUCTIONS (NONE)

## PART 2 PRODUCTS AND MATERIALS

### 2.01 IMPORTED GRANULAR BACKFILL AND GRANULAR FOUNDATION

A. Imported granular fill and granular foundation shall be sand conforming to State of Wisconsin, Department of Transportation, Standard Specifications Section 209.2.2. The following fill layers are referenced in Figure 1.0 – Imported Granular Backfill Detail.

1. Layer 1 shall be 3-inch TB. Contractor shall submit gradation to be approved by Engineer.
2. Layer 2 shall be sand conforming material Grade 2 Modified shown in Table 1.0 with not more than five percent (5 percent) by weight passing a No. 200 sieve.
3. Layer 3 shall be sand conforming material Grade 2 shown in Table 1.0 with not more than fifteen percent (15 percent) by weight passing a No. 200 sieve.

TABLE 1.0 – GRADATION OF FILL MATERIAL

| | MAXIMUM PERCENT PASSING BY WEIGHT | |
|---|---|---|
| SIEVE SIZE | GRADE 2 MODIFIED | GRADE 2 |
| No. 4 | 100 | 100 |
| No. 40 | - | - |
| No. 100 | 30 | 30 |
| No. 200 | 5 | 15 |

## PART 3 CONSTRUCTION METHODS

### 3.01 GENERAL CLASSIFICATION

A. Excavation and trenching of all materials encountered under this contract will be unclassified without regard to type, difficulty to remove, or suitability for use in the construction.

### 3.02 BARRICADES

A. Provide sufficient barricades and protective devices adjacent to excavations to safeguard against injury. Provide and maintain sufficient safety lanterns at walks, roadways and parking areas to provide safety at night.

### 3.03 EXCESS MATERIAL

A. To the extent needed, all suitable excavated materials shall be used for foundation backfill and site grading. The suitability of materials for specific purposes shall be

determined by the Engineer. All surplus or unsuitable excavated materials will be designated as waste and used only for site grading.

## 3.04 STABILITY OF EXCAVATION

A. Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Provide shoring and bracing to retain banks and prevent collapse of excavations as necessary to safeguard workmen, prevent movement of adjacent ground, and avoid damage to existing improvements.

## 3.05 COLD WEATHER PROTECTION

A. Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees Fahrenheit.

## 3.06 BACKFILLING AND COMPACTION

A. Building Foundation Limits. Place backfill to bring excavations to proposed building elevation. Backfill within foundation walls and outside foundation walls to a distance of 1 to 1 slope or a minimum of 10 feet, to whichever is greater.
   1. Backfill shall be spread and compacted uniformly in 8 inch lifts to at least 95 percent maximum dry density per modified proctor (ASTM D1557).

B. Proposed Pavement Limits. Place backfill to bring excavations to proposed pavement subgrade elevation (bottom of pavement base course elevation). Backfill within proposed pavement and sidewalk limits to a distance of 1 to 1 slope or minimum of 10 feet, to whichever is greater.
   1. Backfill shall be spread and compacted uniformly in 8 inch lifts to at least 90 percent maximum dry density per modified proctor (ASTM D1557) below a depth of 5 feet from the proposed pavement surface.
   2. Backfill shall be spread and compacted uniformly in 8 inch lifts to at least 95 percent maximum dry density per modified proctor (ASTM D1557) at a depth within 5 feet of the proposed pavement surface.

C. Contractor shall provide all necessary equipment required to obtain specified compaction. Compaction by travel of grading equipment is not considered adequate for uniform compaction. Small vibratory compactors are required wherever fill is placed adjacent to foundation walls, footings and piers.

D. Backfilling shall be so performed as to prevent wedging action against the structure. Slopes within ten feet of the structure shall be stepped, terraced, or otherwise treated as necessary to prevent slippage and wedging of the backfill.

E. Water shall not be used to expedite settlement of the backfill except to adjust moisture content to optimize compaction. The groundwater level shall be kept below the level of the lift of material being compacted.

3.07 SAMPLING

A. All required sampling, preparing of specimens, and testing except as modified by these specifications shall be performed by an independent laboratory selected by the Engineer and paid for by the Owner. The laboratory shall meet the requirements of ASTM E329. The Engineer shall determine when compaction tests shall be made.

3.08 TESTING

A. Any testing required because of failure of backfill to meet specification requirements shall be paid for by the Contractor. Test reports shall be sent to the Contractor with copies to the Engineer.

PART 4 MEASUREMENT AND PAYMENT

4.01 GENERAL

A. Structural excavation, backfilling and compaction shall be paid for at the bid price in accordance with one of the following methods, unless indicated otherwise in the Bid Schedule or Special Procedures - Division 01.

B. All work specified herein shall be considered in each of the measurement and payment method(s) stipulated, unless indicated otherwise in the Bid Schedule or Special Procedures - Division 01.

4.02 IMPORTED GRANULAR FILL AND GRANULAR FOUNDATION

A. Imported Granular Fill and Granular Foundation, Ton. The measurement for imported granular fill and granular foundation shall be by the ton, as trucked in weight. Weight tickets from approved truck scales shall be provided. Payment shall be made at the contract unit price bid per ton installed.

B. Backfilling and Compaction, Lump Sum.

END OF SECTION